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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,405

07/08/2004

Yi-Ching Wu

13302-US-PA

4404

31561

7590

01/12/2006

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE

7 FLOOR-1, NO. 100

ROOSEVELT ROAD, SECTION 2

TAIPEI, 100

TAIWAN

EXAMINER

MANDALA, VICTOR A

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

2/2

Office Action Summary	Application No.	Applicant(s)	
	10/710,405	WU ET AL.	
	Examiner	Art Unit	
	Victor A. Mandala Jr.	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7, 9-12, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,737,747 Barth et al.

1. Referring to claim 1, a process of fabrication a semiconductor structure, comprising: providing a substrate, (Figure 2 #110); forming a dielectric layer, (Figure 2 #112), over the substrate, (Figure 2 #110); forming a hydrophilic material layer, (Figure 2 #113 where the layer is made out of SiN Col. 6 Lines 58-60), over the dielectric layer, (Figure 2 #112); and forming a hardmask layer, (Figure 2 #120), over the hydrophilic material layer, (Figure 2 #113).
2. Referring to claim 2, a process of claim 1, wherein after forming the hydrophilic material layer, (Figure 2 #113), over the dielectric layer, (Figure 2 #112), and before forming the hardmask layer, (Figure 2 #120), over the hydrophilic material layer, (Figure 2 #113), further comprises: performing a planarization process, (Col. 9 Lines 37-48), on an edge of at least one of the substrate, (Figure 2 #110), the dielectric layer, (Figure 2 #112), the hydrophilic material layer, (Figure 2 #113), or a combination thereof.

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3. Referring to claim 3, a process of claim 2, wherein the planarization process comprises at least one of an upper bevel polish, a lower bevel polish, a side polish or a combination thereof, (Col. 9 Lines 37-48).
4. Referring to claim 4, a process of claim 1, wherein a method of forming the dielectric layer, (Figure 2 #112), comprises a spin on coating method or a chemical vapor deposition method, (Col. 6 Lines 7-13).
5. Referring to claim 5, a process of claim 1, wherein electric layer comprises an organic dielectric material, a carbon-containing dielectric material or a carbon-containing oxide material, (Col. 6 Lines 7-13).
6. Referring to claim 7, a process of claim 1, wherein a material of the hydrophilic material layer, (Figure 2 #113), comprises silane (SiH) containing material, tetraethyl-ortho-silicate (TEOS) oxide containing material or silicon nitride, (SiN Col. 6 Lines 58-60).
7. Referring to claim 9, a semiconductor structure, comprising: a substrate, (Figure 2 #110); a dielectric layer, (Figure 2 #112), disposed over the substrate, (Figure 2 #110); a hydrophilic material layer, (Figure 2 #113), disposed over the dielectric layer, (Figure 2 #112); and a hardmask layer, (Figure 2 #120), disposed over the hydrophilic material layer, (Figure 2 #113).
8. Referring to claim 10, a structure of claim 9, wherein after the hydrophilic material layer, (Figure 2 #113), is disposed over the dielectric layer, (Figure 2 #112), and before the hardmask layer, (Figure 2 #120), is disposed over the hydrophilic material layer, (Figure 2 #113), further comprises: polishing an edge of the structure of semiconductor, (Col. 9 Lines 37-48).

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9. Referring to claim 11, a structure of claim 9, wherein a method of forming the dielectric layer, (Figure 2 #112), comprises a spin on coating method or a chemical vapor deposition method, (Col. 6 Lines 7-13).

10. Referring to claim 12, a structure of claim 9, wherein a material of the dielectric layer, (Figure 2 #112), comprises an organic dielectric material, a carbon-containing dielectric material or a carbon containing oxide material, (Col. 6 Lines 7-13).

11. Referring to claim 14, a structure of claim 9, wherein a material of the hydrophilic material layer, (Figure 2 #113), comprises silane (SiH₄) containing material, tetraethyl-ortho-silicate (TEOS) oxide containing material or silicon nitride, (SiN Col. 6 Lines 58-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,737,747 Barth et al. in view of U.S. Patent Application Publication No. 2005/0194619 Edelstein et al.

12. Referring to claims 6 & 13, a process of claim 1 & 9, wherein the dielectric layer, (Barth et al Figure 2 #112), is composed of at least a precursor comprising tetramethyl-cyclotetra-siloxane (TMCTS), trimethyl-silane (3MS), tetramethyl-silane (4MS), dimethyl-dimethoxy-silane (DMDMOS), octamethyl-cyclotetra-siloxane (OMCTS), diethoxy-methyl-silane (DEMS), or tetramethyl-disiloxane (TMDSO), (See ** below).

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** Barth et al discloses the claimed invention except for the precursors used to make the dielectric film, (SiCOH with a dielectric constant of 1.8 and greater, Col. 6 Lines 35-39), but Edelstein et al does. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Barth et al. with the teachings of Edelstein et al., because using the listed precursors in making a SiCOH layer enhances the Si-CH₂-Si bridging in which allows the material to have a dielectric constant of 1.8 and greater, (Edelstein et al. Paragraph 0092), and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

In re Leshin, 125 USPQ 416.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5, 7-9, 11, 12, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,734,096 Dalton et al.

13. Referring to claim 1, a process of fabrication a semiconductor structure, comprising: providing a substrate, (Figure 2A #10); forming a dielectric layer, (Figure 2A #11), over the substrate, (Figure 2A #10); forming a hydrophilic material layer, (Figure 2A #12 where the layer is made out of SiN Col. 3 Lines 33-37), over the dielectric layer,

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(Figure 2A #11); and forming a hardmask layer, (Figure 2A #20), over the hydrophilic material layer, (Figure 2A #12).

14. Referring to claim 4, a process of claim 1, wherein a method of forming the dielectric layer, (Figure 2A #11), comprises a spin on coating method or a chemical vapor deposition method, (Col. 3 Lines 38-40).

15. Referring to claim 5, a process of claim 1, wherein electric layer comprises an organic dielectric material, a carbon-containing dielectric material or a carbon-containing oxide material, (Col. 3 Lines 38-40).

16. Referring to claim 7, a process of claim 1, wherein a material of the hydrophilic material layer, (Figure 2A #12), comprises silane (SiH₄) containing material, tetraethyl-ortho-silicate (TEOS) oxide containing material or silicon nitride, (SiN Col. 3 Lines 33-37).

17. Referring to claim 8, a process of claim 1, wherein a material of the hardmask layer, (Figure 2A #20), comprises aluminum (Al), titanium nitride, tantalum nitride, titanium silicon nitride (TiSiN), tungsten nitride, tungsten silicon nitride (WSiN) or refractory nitride, (Col. 3 Lines 56-60).

18. Referring to claim 9, a semiconductor structure, comprising: a substrate, (Figure 2A #10); a dielectric layer, (Figure 2A #11), disposed over the substrate, (Figure 2A #10); a hydrophilic material layer, (Figure 2A #12), disposed over the dielectric layer, (Figure 2A #11); and a hardmask layer, (Figure 2A #20), disposed over the hydrophilic material layer, (Figure 2A #12).

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19. Referring to claim 11, a structure of claim 9, wherein a method of forming the dielectric layer, (Figure 2A #11), comprises a spin on coating method or a chemical vapor deposition method, (Col. 3 Lines 38-40).
20. Referring to claim 12, a structure of claim 9, wherein a material of the dielectric layer, (Figure 2A #11), comprises an organic dielectric material, a carbon-containing dielectric material or a carbon containing oxide material, (Col. 3 Lines 38-40).
21. Referring to claim 14, a structure of claim 9, wherein a material of the hydrophilic material layer, (Figure 2A #12), comprises silane (SiH₄) containing material, tetraethyl-ortho-silicate (TEOS) oxide containing material or silicon nitride, (SiN Col. 3 Lines 33-37).
22. Referring to claim 15, a structure of claim 9, wherein a material of the hardmask layer, (Figure 2A #20), comprises aluminum (Al), titanium nitride, tantalum nitride, titanium silicon nitride (TiSiN), tungsten nitride, tungsten silicon nitride (WSiN) or refractory nitride, (Col. 3 Lines 56-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,734,096 Dalton et al. in view of U.S. Patent Application Publication No. 2005/0194619 Edelstein et al.

23. Referring to claims 6 & 13, a process of claim 1 & 9, wherein the dielectric layer, (Dalton et al. Figure 2A #11), is composed of at least a precursor comprising tetramethyl-cyclotetra-siloxane (TMCTS), trimethyl-silane (3MS), tetramethyl-silane (4MS), dimethyl-dimethoxy-silane (DMDMOS), octamethyl-cyclotetra-siloxane (OMCTS), diethoxy-methyl-silane (DEMS), or tetramethyl-disiloxane (TMDSO), (See *** below).

*** Dalton et al discloses the claimed invention except for the precursors used to make the dielectric film, (SiCOH with a dielectric constant of < 4.5 , Col. 1 Lines 44-46 and Col. 3 Lines 38-40), but Edelstein et al does. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Dalton et al. with the teachings of Edelstein et al., because using the listed precursors in making a SiCOH layer enhances the Si-CH₂-Si bridging in which allows the material to have a dielectric constant of 1.8 and greater, (Edelstein et al. Paragraph 0092), and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 16-19 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent Application Publication No. 2005/0221606 Lee et al.

24. Referring to claim 16, a semiconductor structure, comprising; a substrate; a first dielectric layer, (Figure 17 #616), disposed over the substrate, (Figure 17 #612); a first hydrophilic material layer, (Figure 17 #618 where the layer is made out of a silane Paragraph 0105 Lines 7-10); disposed over the first dielectric layer, (Figure 17 #616), a first hardmask layer, (Figure 17 #632 where #618 is called a hard mask and #632 can be made of the same material hence it is inherent that #632 is a hard mask Paragraph 0109 Lines 18-19), disposed over the first hydrophilic material layer, (Figure 17 #618); a second dielectric layer, (Figure 17 #634), disposed over the first hardmask layer, (Figure 17 #634); a second hydrophilic material layer, (Figure 17 #636 where the layer is made out of a silane Paragraph 0110 Lines 7-13), disposed over the second dielectric layer, (Figure 17 #634); and a second hardmask layer, (Figure 17 #640 or it can be #644), disposed over the second hydrophilic material layer, (Figure 17 #636).

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25. Referring to claim 17, a structure of claim 16, wherein a via, (Figure 17 #656 & 626), is disposed in the first dielectric layer, (Figure 17 #616), the first hydrophilic material layer, (Figure 17 #618), and the first hardmask layer, (Figure 17 #632).

26. Referring to claim 18, a structure of claim 17, wherein a trench, (Figure 17 #656), is disposed in the second dielectric layer, (Figure 17 #634), the second hydrophilic material layer, (Figure 17 #636), and the second hardmask layer, (Figure 17 #640 or 644), and wherein the via, (Figure 17 #656 & 626), is exposed within the trench, (Figure 17 #656).

27. Referring to claim 19, a structure of claim 18, wherein a metal is disposed in the via and the trench, (Figure 17 #626 & 656).

28. Referring to claim 25, a structure of claim 16, wherein a material of the first hydrophilic material layer or a material of the second hydrophilic material comprises silane (SiH₄) containing material, tetraethyl-ortho-silicate (TEOS) oxide containing material or silicon nitride, (Paragraph 0105 Lines 7-10 & Paragraph 0110 Lines 7-13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0221606 Lee et al.

29. Referring to claim 20, a structure of claim 16, wherein after the first hydrophilic material layer is disposed over the first dielectric layer and over the first before the first

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hardmask layer is disposed hydrophilic material layer, further comprises: polishing an edge of the structure of semiconductor, (See */* below).

30. Referring to claim 21, a structure of claim 16, wherein after the second hydrophilic material layer is disposed over the second dielectric layer and before the second hardmask layer is disposed over the second hydrophilic material layer, further comprises: polishing an edge of the structure of semiconductor, (See */* below).

31. Referring to claim 22, a structure of claim 16, wherein a method of forming the first dielectric layer or the second dielectric layer comprises a spin on coating method or a chemical vapor deposition method, (See */* below).

32. Referring to claim 24, a structure of claim 16, wherein the first dielectric layer or the second dielectric layer is composed of at least a precursor comprising tetramethylcyclotetra-siloxane (TMCTS), trimethyl-silane (3MS), tetramethyl-silane (4MS), dimethyl-dimethoxy-silane (DMDMOS), octamethyl-cyclotetra-siloxane (OMCTS), diethoxy-methyl-silane (DEMS), or tetramethyl-disiloxane (TMDSO), (See */* below).

/ Initially, and with respect to claims 20-22 and 24, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether

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claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23 & 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0221606 Lee et al. in view of U.S. Patent No. 6,734,096 Dalton et al.

33. Referring to claim 23, a structure of claim 16, wherein a material of the first dielectric layer, (Lee et al. Figure 17 #616 and Dalton et al. Figure 2A #11), or a material of the second dielectric layer, (Lee et al. Figure 17 #634), comprises an organic dielectric material, a carbon containing dielectric material or a carbon-containing oxide material, (See */* below).

/ Lee et al. discloses the claimed invention except for the first or second dielectric layers comprising an organic dielectric material, a carbon containing dielectric material or a carbon-containing oxide material, but Dalton et al. does in a similar damascene invention, (Dalton et al. Col. 3 Lines 38-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the dielectric layers out of an organic dielectric material, a carbon containing dielectric material or a carbon-

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containing oxide material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

34. Referring to claim 26, a structure of claim 16, wherein a material of the first hardmask layer, (Lee et al. Figure 17 #632 and Dalton et al. Figure 2A #20), or a material of the second hardmask layer, (Lee et al. Figure 17 #640 or 644), comprises aluminum (Al), titanium nitride, tantalum nitride, titanium silicon nitride (TiSiN), tungsten nitride, tungsten silicon nitride (WSiN) or refractory nitride, (See *//** below).

*//** Lee et al. discloses the claimed invention except for the first or second hardmask layers comprising aluminum (Al), titanium nitride, tantalum nitride, titanium silicon nitride (TiSiN), tungsten nitride, tungsten silicon nitride (WSiN) or refractory nitride, but Dalton et al. does in a similar damascene invention, (Dalton et al. Col. 3 Lines 56-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the hardmask layers out of aluminum (Al), titanium nitride, tantalum nitride, titanium silicon nitride (TiSiN), tungsten nitride, tungsten silicon nitride (WSiN) or refractory nitride, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A. Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

~~NATHAN J. FLYNN~~
~~SUPERVISORY PATENT EXAMINER~~
~~TECHNOLOGY CENTER 2800~~

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAMJ
1/8/06